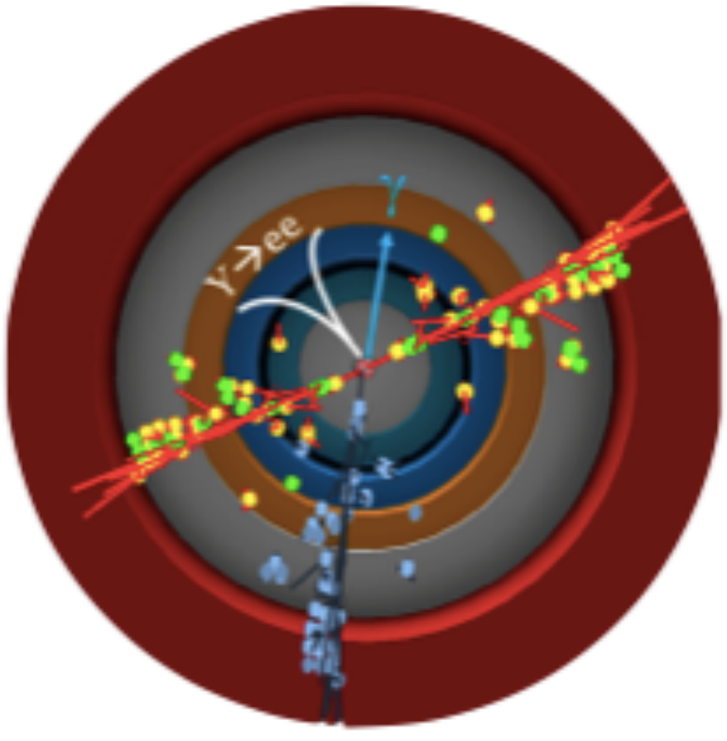

sPHENIX response to ALD re-scoping charge

Dave Morrison
Gunther Roland

sPHENIX Collaboration Meeting 5/18/2016

Charge from ALD Berndt Mueller

"I have therefore requested that sPHENIX Project Management, in close collaboration with the sPHENIX Collaboration, develops a credible plan encompassing an option of baseline design scope, cost, and schedule that will allow the detector to be completed on schedule for data taking in the FY2022 RHIC run within the presently foreseen DOE funding profile, and that the sPHENIX Project Management present this plan to BNL management no later than May 31, 2016. The plan should maintain the 40% contingency requested by the cost and schedule review. This plan should not assume the availability of additional funding from non-DOE sources, but may describe which elements would be added to the baseline scope of sPHENIX if additional funding became available."

Response to ALD Charge

Process, goals, constraints

- Deliver ~10 page document to ALD Berndt Mueller by 5/31
- Outline baseline detector and physics scope within DOE funding constraints (“$75M”)
- Document will not be widely distributed, not intended for DOE. Maybe starting point for another review
- Basic parameters need to be defined by end of collaboration meeting
- Dave/Gunther will lead writing of actual document
- As discussions evolve we are speaking with ALD

DOE and RHIC are supportive; this process is step towards realizing the project

- **At this meeting**
  - Extended discussion now and tomorrow morning in the “plenary” session
  - Further discussion in EC meeting this afternoon
  - Crucial input from ToG group, project, sub detector groups
  - Technical/strategic comments are welcome at any time

ALD Charge

- Charge reduces to saving ~$4M out of ~$18M “discretionary” M&S items:
  - Inner Tracker
  - **Outer Tracker**
  - **EMCal**
  - Magnet
  - Inner HCal
  - **Outer HCal**
  - **DAQ/Trigger**
  - non-bold items: Either no or little cost (hence no savings) or not discretionary (Magnet)
  - Special case: inner tracker, where we may want to improve on MIE configuration (anti-savings)
- **Need to optimize capabilities for <u>compelling</u> physics related to sPHENIX science case within constraints**
  - Not just a paper exercise - some choices we make may stick
  - But: This is “worst-case” funding scenario, i.e., no non-DOE, non-US contributions

ALD Charge, cntd

- Science drivers/case studies mapped to Topical Groups (ToGs)
  - **Jet structure and substructure**
  - **Heavy flavor jets**
  - **Upsilon spectroscopy**
  - Complimentary/comprehensive view of science capabilities

- Identified comprehensive list of re-scoping options for each subdetector
- For each option, determine
- **Cost savings**
  - best-effort by project to provide estimate
- **Physics impact**
  - evaluation ranges from conceptual consideration to generator-level studies to full GEANT simulation + reconstruction
- **Project concerns**
  - best-effort by project to evaluate engineering/schedule impact
- **Feasibility of later buy-back**
  - best-effort by collaboration and project to evaluate schedule and funding constraints

ALD Charge, cntd

- **Schedule:**
  - Quick overview of proposed options today
  - Discussion this morning: Questions, comments, new proposals, strategy, tactics
  - Early afternoon: Status of evaluation by ToGs
    - work in progress!
  - Late afternoon: Further discussion in EC meeting
  - Tomorrow: Contributions from the audience (1 slide), wrap up discussion
- **Document**:
  - Summarize key physics goals
  - Describe performance of reference configuration for science drivers
  - Summarize all re-scoping options, including those we consider off-the-table
    - Evaluate savings, physics impact, project concerns, feasibility of buying back lost scope for each option
  - Describe performance of best-worst-case configuration(s)
  - Describe priorities of buy-back towards reference configuration

Options, options, options…

https://paper.dropbox.com/doc/sPHENIX-re-scoping-options-nn5FoOe7tlWHVjewVCae7

This is a Dropbox paper. Everybody with the link and a Dropbox account can add comments or modify the main text of the document. Comments would be great; we trust that any edits of the main body of the document would be done judiciously. There is no learning curve associated with Dropbox paper, but we'll also transcribe any comments received by email etc.

Let’s have a look…